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To Edward Saunders Esqre
President &ca Members of the
Board of Revenue

Gentlemen

As the setting in of the rains may impede the further progress of my survey for some weeks - and as three months are nearly elapsed since my departure from Madras it is proper I should now give a statement of the progress I have made, - and inform you, that although I am in possession of sufficient informa[illegible] for [illegible] Report - yet, constant journeys and the extreme heat of the weather, made it altogether impracticable that the arrangement of the materials I have collected, and the constr[illegible] of the Map could keep pace with the survey. I shall, however, immediately devote my time and attention to these points, and occasionally will take advantage as the weather may perm[illegible] by excursions from hence, to add to the routes I have already surveyed and to ascertain a f[illegible]

pro[illegible]

points, although not very essential, yet which I am desirous to include in the report

2 The route which I came, and which I deemed the best to obtain information on the subjects I wanted was, by Goomerapoondy - through part of the Districts of Calastry and Vencatagher to Nellore and Ongole - I found many parts of these Countries extremely well watered, and highly cultivated - From Ongole I proceeded by Ardingay and Bellumconda to Chintapilly - and throughout this tract the objects I have constantly kept in view, were to ascertain the various modes of watering and cultivation - the nature and situation of the best Tanks the different methods of constructing Calengulas, Tooms or Sluices, and to discover every means of Improvement that might be successfully intro-duced in the Circars.

3 At Chintapilly I examined that narrow part of the Kistnah, about a mile above the Fort where the waters are confined between two rocks in a space of little more than three hundred yards - afterwards I proceeded to explore the face of the country, on each side of the River,

from

from Chintapully to Ibrampatam – which, for th
present, it is sufficient to say, appears to me totall
ineligible, and I may add impracticable for Cana
or aqueducts, however favorable the Levels might
have been found.

4 Three miles above Ibrampatam, a
natural channel issues from the Kistnah, called
Jagamundra or Jagamundalum calwah, whic
after running nearly parallel to the river for
the space of eight miles joins the Boodimairoo a
river whose source is thirty miles north of Condap
– The bed of the Boodimairoo serves at once
the purpose of conveying its' own waters and thos
of the Kistnah, that are brought by the
Jagamundalum Calwah, when the river rise
to a certain height, to many tanks south east of
Bezoara – which after filling by numerous –
artificial water courses, the superabundant
waters are discharged into the Colair this is t
most valuable water-course in the Masulipatam
Circar, and to which I shall therefore have
occasion to draw your attention.

5 [illegible]veyed the Jagamundal
Calwah, and the Boodimairoo which together
from a natural channel from the Kistnah to th
Colair of sixty miles in length I crossed the
Boodimairoo

Boodimairoo at a village called Coodoorylly, twelve mi[les]
south west of Ellore and proceeded to this place. In
this rout there are also many large tanks that are filled
by Calwahs cut from a small river called Ramalairoo
which rises amongst the hills twenty miles northwest from Ellore

6 The Country round Ellore is extremely
well watered by tanks that are filled from a larger river
than the last mentioned, called Tambulairoo this river rises
about forty miles North from Ellore.

7 Proceeding north Easterly, I crossed another
river, smaller than either of the others called Gooradairoo,
near Goodagul which fills several Tanks for the
purpose of cultivation in its course to the Colair -

8 From Goodagul I skirted the Colair
until I came to the Nuyairoo. In this tract are
many large Gettoos or tanks, which retain the Inun-
-dation from the Godaverry for the purpose of watering
the lands - these Gettoos are also supplied from
the Nuyairoo by artificial water courses - some of
these embankments are from three to four miles in
length - Nayairoo is the name of a small river
that was surveyed by the late Captain Dugood
many [illegible] s [illegible] I have traced it to the
Polavrun mountains where it rises, a distance above
sixty miles from the Colair: when the Godavery is
full the waters are conveyed by some natural and
artificial

artificial communications to the Wuyairoo which is the grand channel of the Inundation to the Colair - It is a natural river formed chiefly by the rains that fall on the high grounds Southwest of Polaram and partly from the Polaram mountains

9 It having been noticed in the Memoir on watering the Circars published by Mr Dalrymple that there must be some communication from the Godavery to the Eliserum river (properly Yalairoo) I thought it my duty to examine the Coreonda District which lies between the Goda-very and the Pidapore Zemindary - and for this purpose having crossed the river at Polarum I soon discovered by the appearance of the Country that no natural communication could possibly be in this direction as the lands are far above the level of the Godavery. Of the communication mentioned by Doctor Roxburgh I have however received some vague information - It is said that the Mooriki-airoo which falls into the Godavery at [illegible] Polarum joins the Yalairoo in [illegible]mpa Country - and that when the freshes come down the wa[illegible]of the Godavery enter the Mooriki-airoo and [illegible] this means reach the Yalairoo and descend t[illegible]

Pallap

Pittapore &c. this certainly is plausible and seems to acc[ount]
for the rise of the Yalairoo at the same time as the
Godavery

10 Having surveyed as much of the Coronda[h]
District as lay in my route to Pittapore I went ex-
-amined the Yelairoo as far up as the village of
Yaliserum where it issues from a very mountainous
Country – In this examination I found much
reason to admire the excellent mode of directing
its waters which hereafter I shall be particular
in describing as this valuable river affords the
best example I have yet seen for the management
of small rivers.

11 I then proceeded to trace the Pedairoo
(another river that passes on the north side of Peddapore
and close to Samulcotah which is upon a lower level
than the Yalairoo and is joined to it by two or more
large intercourses) to its junction with the
Tooliah Bang – this is a natural channel from the
Godavery near Dowlacheram through which the
waters flow when the Godavery is high – the
[illegible] several dams across it by which
the water is diverted into several Tanks – it does not
appear however that its waters are so properly
applied as they might be which I understand
has

has been prevented by the frequent disputes & Jealousies between the Pedapore and Pettapore Zemindars on the subject of water

12 At Doulacherum I forded the Godavery and went to Nardole thence to the yera-calwah - a river of considerable length, which joins the Wuyairoo and which I imagined might afford some advantages - having examined as far as Auuntapilly I returned to Ellore.

13 During the Survey of this route of nearly seven hundred miles, several intelligent Bramins of the corps of Guides were employed in different parts to ascertain some points connected with the investigation that heretofore were not accurately established - The Boodimairoo from its junction with the Jagamundalum calwah has been explored to its source - The Ramalairoo Tambalairoo and Goondairoo rivers in the vicinity of Ellore, and the Pullairoo nullah partly surveyed by Mr Topping have also been examined - and the nullah noticed in my letter to Government dated the 13th of January 1793 has been ascertained. This Nullah, ca[illegible]ues from the Kistnah opposite [illegible]ezoara and traversing the South-East part of the Guntoor Circar crosses the road between Baupetlah and Sandol[illegible]

I before discribed – Of these rivers and nullahs I have procured Sketch surveys, sufficiently accurate, the purpose I wanted

14 From what has been said – it will doubtless appear obvious to you that much erroneous information, and much local ignorance were dis=played at the time the scheme for watering the Circars was originally discussed – I confess when I read the following assertions, which have since appeared in the Memoir on watering the Circars, I scarcely hoped to find a Reservoir, or water course of any consequence, throughout this supposed-neglected Country.

"I have often been astonished" says Doctor Roxburgh, "that in no one place in these "Circars have I ever met with, or heard of, the "least trace of any work ancient or modern "for retaining or conveying the water to fertilize "their Paddy Fields"

In another place the Doctor says, "Mr Denton answers well the reason of "their being no Tanks in the Circars a circums-"=stance which Mr Karr did not know"

I… [illegible] observation it is true, applies in some respect to the Meridian of Samulcotah where the Yalairoo river having a stream in it throughout the year, the

the contraction of tanks became unnecessary, as
small temporary dams across the river serve to
distribute the water amongst the adjacent fields
through numerous water cortes made for the purpos
16 But - a few miles north from
Sunnulcotah the observation does not hold - at the
foot of the Totapilly mountains there are tanks for
retaining the rains. - near Yalisenno I observed som
extensive Paddy fields, forty or fifty feet above
the level of Yalairoo watered from tanks. - To
the westward of Sunnulcotah in the Corconda
District, there are also many tanks - as there ar
along the Toolich - Bang in short, throughout
the tract I have surveyed, as my Field Book
will shew, there appears to be no deficiency
of Tanks, where they are necessary, and I mu
here beg leave to observe, and to recommend to
your serious consideration, that if the present
means of watering these Districts be proper
attended to - if the Tanks and Water-courses be
put in a compl[illegible] the cultiva
of Rice wo[illegible]y extended - th
Revenue increased - and an abundant surplu
may be kept at all times in the Country
which in my opinion is the only certain
mr

mode of averting the horrors of Famine.

17 From the inquiries I have made I find that the inundations of the Godavery and Kistnah depend in a great degree on the fall of rain on this side of the Peninsula - and that when this fails, the inundation generally fails as was the case in 1791 and 1793 - consequently had any works, and none but those of a very expensive nature would be of much use been constructed - for commanding supplies of water from the Kistna in those years, as the river did not rise sufficiently, they must have proved ineffectual

18 But whatever improvements it may be found expedient to suggest - the first and most important object of your immediate attention is the repairs of Tanks - for, if these were effectually attended to, I am decidedly of opin[illegible], it will be unnecessary, for the present, considering the reduced state of the inhabitants, whatever capability the Rivers Kistnah and Godavery may afford, to go to any greater expence than those repairs may [illegible] that ought soon to be [illegible] whereas new works being always costly it would require the produce of several years to defray the charges of constructing them - nor does it appear to me that they are necessary

necessary whilst the old are neglected and suffered to decay.

19 It is a general complaint in these Circars that the Tanks are not repaired - the inhabitants have often told me "if the Company will be at "the first expence of repairing our Tanks, we will afterwards according to established usage defray the half; and will cultivate double the quantity of Rice" - The following Extracts from my Diary, which contains, such information as I procured from the curnums and chief Inhabitants, with my own remarks, will place in a strong point of view the importance of these repairs - and, if my information is correct will shew to what extent the state of cultivation in some parts of this country has been reduced.

"Fourth Division of the Masulipatam Circars,

Bezoara 15 April 1798 20. "There is a large Tank at Bezoara "which is filled from the Kistnah and partly "from the rains falling on the adjoining Hills - "it formerly watered 2000 Potties of Paddy worth "6000 Pagodas - at present it is so much out "of repair, tha[illegible]ltivation - and "the Calwah or water-course, from the River, "requires being deepened as no water has passed "from the Kistnah into this tank for three years

"years – The Chief Inhabitants assure me that the
"sum of Three hundred Madras Pagodas laid out
"upon the Tank and watercourse will make it
"yield its former produce – The Paddy ground is now
"used for Innialoo."

Conduspilly 17th April 1798 — 21 "The Wunnairoo calwah, which
"it is said was made 200 years ago is the principal
"water course from the Boodimairoo it is fourteen
"miles in length – and conveys water to the tanks
"of many Villages of which the following ten
"are the principal – 1st. Manikonda –
"2nd Calavapamula – 3rd Conduspilly – 4th Vaymunda
"5 Ventrapuckada – 6 – Vanapamula –
"7 Pamelapandoo – 8 Innapandoo – 9 Mopurroo
"10 Dossapandoo

"Of these Tanks Pamelapanda
"is the best – all the others I am told require
"repairs" –

"One coss from Pamelapandoo
"there is a large tank called Yeedupoo-cherroo
"which might water 1000 Poottees of Paddy
but lately it has not been used"

[illegible] Tank of Mopurroo when
"in good repair watered 250 Poottees of Paddy
" – now it waters only 50. –"

Peda Iravada

Oda Irawada 19th April 1798 - 22. The tanks near the borders of the
"Colair are very shallow - consequently requiring low
"Embankments - but they are very extensive. The Paddy
"banks here are not more than 5 or 6 inches broad,
"and only two or three inches high - the Country is
"so even and Flat, and so admirably adapted for the
"Cultivation of Rice, that in some places it is
"inundated from the Nullahs without any Com=
"=partments being formed in the fields - Yet, a great
"deal of this fine land lays waste & uncultivated -
"although the means of watering be at hand. -

"Polconda 19th April 1798 - 23 The large tank of Polconda when
"in complete repair, about seventeen years ago, supplied
"Water to the lands of thirty Villages, yielding (20,000)
"Twenty thousand Poothies of Paddy, worth Sixty thousand
"(60,000) Madras Pagodas - being at present neglected
"and out of Repair, it waters no more than three
"thousand (3000) Poothies. This tank is filled from
"the Boodimairoo consequently has the benefit of
"supplies from the Kistnah as well as the rains." -

"Third Division of the Masulipatam Circars.

Ipurroo 26th April 1798 - 24 Here, on the North side of the Colair,
"the inhabitants say that the embankments of the
"Tettoos, or Tanks, are too small - if they were higher
"& thicker a greater quantity of Water would be retain[ed]
"and they assu[re] [illegible] the[y would be] able to exten[d]
"the Cultivat[ion] [illegible] a greater surfa[ce]
"to lay in Store to provide against a failure of rai[ns]
"or a failure of Inundation." -

25 In the Middle of March when
I left Madras, I remarked that no sooner was the
bi[rd]

first Crop of Paddy collected and removed from the field than the ploughs were set to work & a second Crop transplanted in the same field from a bed where it was in readiness for the purpose, having been sown a Month or Six Weeks before — the same is practiced in the Calastri - Vencatagherri - Nellore & Ongole Countries — where in many places, although there had not been a drop of rain for four Months, I beheld the most luxuriant verdure & vegetation. —

26. The Guntoor Circar exhibited a miserable Contrast — excepting a few spots of Natchinee watered from deep Square tanks cut through a Stratum of Rock, or from Wells, & one or two fields which served to prove the practicability of raising a second Crop on the same field (as was evident by the preceding Crops being still in heaps (watered by tanks of a better description — the whole Country appeared barren and uncultivated. —

27. This, however, was perhaps not surprising as the route I came was mostly through a dry grain Country — yet I am inclined to hope, from the observations I made, that when the small Rivers of Guntoor, have been examined they may be found of more important use in Cultivation than is at present made of them — Formerly they seem to have been [illegible] to [illegible] [illegible]se of watering lands. At [illegible] [illegible]s a very strong mound, a thousand [illegible] in length, from ninety to one hundred feet at the base, in breadth, and five and twenty feet high — it crosses the low ground between two ridges, & formerly intercepted a small river — Now there are two Breaches in it [illegible] the [illegible]

seems to have been long neglected, as the bed of this ancient tank which has been extensive, and the fields which it formerly watered are overgrown with thorn Trees. In my Report I shall have occasion to offer some observations on the subject of Old Embankments - of the improvement of Tanks now in use - & of the modes of increasing their Supplies of Water. -

28 But to what cause can it be ascribed that the <u>Masulipatam Circar</u>, where there are many tanks, plentifully supplied by the <u>Kistnah</u> & <u>Godavery</u>, & by small rivers, or from rains that fall on the neighbouring lands, that the cultivation of rice differs so much from the Southern Countries, there is hardly to be found an instance of a second Crop? - It is true that on the Lanka's or islands in the <u>Colair Lake</u>, & partially on its borders, they find means to produce a second Crop, which is sown in the end of December or January or February - & is watered by means of Carrums, which are long scoops, formed of the trunk of the Palmira tree, moved by a lever - The whole Crop amounts to a very inconsiderable quantity - not much exceeding, I believe, one thousand Putties of Paddy - Even upon the banks of the <u>Tilairoo</u>, in which there is water a[ll] the year, there is only one Crop of Paddy raised - In Conversation with the Inhabitants I have often questioned th[illegible] mo[illegible]
practice of [illegible]
that they mig[illegible]
Crops annual[illegible]
"Custom" whi[illegible]
are[illegible]

assured that if the tanks are put in a complete state of repair they will then raise two Crops - Experiments on one or two of the best tanks in each District would easily determine the Advantages that would arise from introducing this practice in the Circars. -

29. Between the Colair & Bezoara along the banks of the Boodumairoo, the Country, being remarkably even & flat, is peculiarly adapted for rice as it can be so easily watered - producing only a single crop, the inhabitants, as they themselves acknowledge, are idle from January till June which is the case throughout these Districts. Adjoining those lands already cultivated there are very extensive open Plains of Excellent Soil, equally favorable in all respects, that have never yet been brought into cultivation. These might certainly at a small expense be rendered productive of Rice, since the Boodumairoo, amply supplied by the rains & by the Kistnah, intersects these plains, & receives, from June to November, a greater quantity of Water than is expended in the present cultivation, therefore, next to the repairs of Tanks and Watercourses, I beg leave to point out to you that these are the situations which claim your attention for whilst they remain waste and neglected, it would be as injudicious, & un[illegible] [illegible] [illegible] a [illegible] [illegible]sary, to attempt by Dams, [illegible] [illegible]queducts, to draw supplies [illegible] & Godavery for the purpose [illegible] on the banks of these rivers, [illegible] Circars, far less favorable by [illegible] [illegible]ivati[illegible]

30. I will now only add, that if after these Repairs have been made, & when the part of the Country I have just described, shall have been improved as far as its present tanks & Watercourses will admit, it should be deemed expedient, still to carry it to a higher pitch of improvement, by introducing a second Crop, I am much inclined to hope that this will not be found impracticable -

31. Eastward of Bezwara, and towards Mustabadda, there is a low flat piece of ground over-grown with long coarse grass, like the beds of some Tanks, which evidently denotes its being subject to Inundation for a length of time - its Surface is from about ten to sixteen feet lower than the Level of the Upper bank of the Kistna at Bezoara - its shape is nearly a Circle of Six or Seven Miles in diameter and when viewed from the Eastward (Saraigoodum Hill) appearing entirely encompassed by Mountains, it forms the grandest amphitheatre that can be imagined. In the space it occupies, which exceeds twenty Square Miles, no Villages have been erected. The Boodemairoo enters from the Westward, through a wide gap in the Moun-tains, & after winding through this low ground, in a bed of various depths, it seeks a passage through th[illegible]s the Hills of Tooratala an[illegible]at meeting a ridge at the point of Tooratala, it is forced to fly off at nearly a right angle in the directi[on] of Saraigoodum - This Circumstance, at first inspired me with the hope of having made

an

an important discovery — I examined the Ridge & was delighted to find that it occupies the whole space between the two hills abovementioned — I am therefore not without sanguine hopes that a Grand Reservoir, or Lake, about Twenty Miles in Circumference, may be formed here, at an inconsiderable expense, when compared to the great advantages that would evidently result from retaining so large a body of Water in so advantageous a situation — As far as I can judge at present the only expense would be in raising the Embankment (which need not be of great height on account of the Ridge) & making the Calingulas & Sluices — All the Tanks & Water Courses are already constructed. A Minute Survey & Levels, which I intend taking as soon as possible, will enable me to determine on the expediency of this project — & also to lay before you a Design, & Estimate of the Expense that would be incurred — & of the advantages that would arise from it. —

32 — At present I will not enter farther into the subject of the improvements of which I conceive several parts of the Circar capable — as hereafter I shall give a particular description when I have prepared the Maps & Sketches, which are [illegible] to render clear & Comprehensive [illegible] shall have occasion to make. —

33. During this investigation I have often had reason to regret that so small a portion of these Districts has as yet undergone an Actual Survey, & that there is no Map of the

tion

interior of the Circars which could afford me any material assistance. To the late Mr. Toppings and Captain Caldwell's accurate Surveys of the Kistnah, & Godavery, I am indeed much indebted and to Captain Dugood's of the Wuyairoo; but excepting these the rest of the Map of the Masulipatam Circar is extremely imperfect, being a Moochy Map, constructed many years ago in the Engineers Office at Masulipatam — The Peddapore & Pettapore Zemindaries, & almost the whole of the Rajahmundry Circar, excepting the names of a few principal places, are nearly a blank in all our Maps. On this account, whilst I explored the Toleima River, I availed myself of this occasion to add as much as I could to the Topography of these parts — It is the work of a few days — a specimen, which I shall have the honor to lay before you, that you may form a judgement how soon an useful Survey of these Countries might be made, if unnecessary minuteness is not required.

34. The Scale on which it is drawn is half an inch to a Geographical mile; this I deem sufficient for any general Survey. If upon this Scale the positions of Principal places, Villages & remarkable Peaks, or Hills, be accurately deter=mined, to se[illegible] the rivers, principal [illegible] [illegible]ks are easily traced in by the hand; as are Arable, hilly, or Woody lands — & thus a Picture of the Country is formed on the Basis of a Map, sufficiently Minute, for general purposes of Revenue or

Military

Military matters —

35. Such a Survey I made last year of the District of Palnaud, which contains nine hundred Square Miles. This Survey was accomplished in about three Months, during which time I visited every village & every pass in the District. A Survey of the same kind would I willingly undertake of the Masulipatam & Rajahmundry Circars, if the state of my health would permit, but unfortunately for myself I have already suffered so much from the effects of the Sun & heat of the weather that I am discouraged from attempting a task so laborious. I must therefore, necessarily, confine my own labours to those Surveys & Sections connected with ascertaining the practicability of approximating the waters of the Kistnah & Godavery to the purposes of Cultivation —

36. But as there are other views & Situations deserving attention, and the means of improvement of which the Circars are capable cannot be ascertained without proper surveys accompanied with Detailed description of the nature of the Soil, the present means of watering the lands of the tanks & Water Courses [illegible] the repairs & increased Culti- [illegible] connected with the improvement of the Country. I trust you will see the necessity of appointing a proper person as soon as possible to the execution of this important duty —

Some